

The Modern Horse Series—No. 1

Notes on Horsemastership

MAJOR R. S. TIMMIS, D.S.O.

Royal Canadian Dragoons



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NOTES ON HORSEMASTERSHIP

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NOTES ON HORSEMASTERSHIP

BY

MAJOR R. S. TIMMIS, D.S.O.

(ROYAL CANADIAN DRAGOONS)

AUTHOR OF "MODERN HORSE MANAGEMENT," ETC.

LONDON

FORSTER GROOM & CO., LTD.

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THIS BOOK
IS
MOST RESPECTFULLY DEDICATED
BY THE AUTHOR
TO
LIEUT.-GEN. SIR CHARLES KAVANAGH
K.C.B., C.V.O., D.S.O.
COMMANDING THE BRITISH CAVALRY CORPS

FOREWORD

Good horsemastership is always a subject of pleasure to horse enthusiasts and humanitarians. From a business point of view it means efficiency and economy in military, sporting, commercial, or agricultural life. This is too little realised, and the training of men who have to look after horses is often haphazard or non-existent.

The present times of high prices and dear labour should make us all realise that the cheapest policy is to employ only the best horses, and the most knowledgeable men to look after them.

A man who thoroughly understands horse management will keep his animals in first-rate working condition at the minimum expense, and will seldom require the assistance of a veterinarian. Horseowners and horsekeepers, whether masters or men, experienced and inexperienced, will derive much benefit from a study of this little book. It is only the young and inexperienced man who thinks that he knows all that there is to know about horses and their management. The experienced man knows that he can still learn both from the writings of others and his own observation.

Having mastered the general principles, it remains to apply them to our horses according to the conditions they live under, their individuality, and the special work for which they have to be got, and kept, fit.

Close study and observation will be rewarded by success, pleasure, and great economy.

J. VAUGHAN, *Major-General,*
Inspector of Q.M.G. Services.

G.H.Q., FRANCE,
February 1919.

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NOTES ON HORSEMASTERSHIP

CHAPTER I

INTRODUCTION

A NUMBER of horse-lovers, who have been kind enough to peruse *Modern Horse Management*, have asked me why I do not publish a few notes on the care of the horse now that hostilities have ceased. As a matter of fact, the book referred to above was published a considerable time after the war commenced, and since that date I have taken various notes from lessons learnt whilst connected with horses in the Cavalry for over three years in France. During the earlier days of the war, when I was attached to the Infantry, I always went out of my way to study the all-important art of "Modern Horsemastership."

In offering these few notes to the horse-loving public, I hope they will be accepted in the spirit

of an endeavour to help our much-abused dumb friends.

It is unfortunate that often those men least qualified to care for horses should have charge of them ; and it is quite clear to any one who has studied the subject that many horse-owners and so-called horsemen care very little for the horse—except so far as it is a means of giving them pleasure. As I have so often written, and spoken in lectures, one of the commonest faults amongst horse-owners is the feeling that they have nothing to learn. There is no subject that requires more careful study ; and the best horsemen are learning every day.

A great deal of bad horsemastership is due to lack of observation. Let me explain by a couple of examples. I was walking through some horse lines behind the line in France with a friend (a veterinary surgeon). When we got to one end the horses were very fidgety, whisking their tails about ; whilst at the other end they were eating their hay in peace. My friend turned to me, and said, “ Do you see the cause of that ? ” I at once noticed a large manure pile close by, which accounted for the flies. This heap was covered with earth next day. Later he said, “ Ninety per cent. of men would not have noticed the horses being worried, and ninety per cent. of those that did would not have investigated the cause.” One day I was riding with a senior officer who had had twenty

years' experience in the Cavalry. His horse was being worried by something, for she kept on swishing her tail round and round. The rider did not seem even to notice it; this went on so long, that at last I said, "There is a fly on your horse's loins, sir!" I cannot conceive how some riders who have hunted all their lives seem to know no more than they did when they first began about stable management and general care of the horse.

Officers and owners must take a personal interest in each and every horse in his command. And there is nothing that will bring better results than praise to the soldier or groom when it is due.

Bad horsemastership, as often as not, leads to cruelty, but such cruelty can scarcely come under the heading of wanton cruelty. This latter is either the result of a bad temper or the dictations of a barbarous fashion. I deal with barbarous fashions at the end of the book.

When I first went to Canada, I was impressed with the very few shabby-looking horses one saw, and during the years that I acted as an honorary inspector to a S.P.C.A. I was able to satisfy myself that, generally, the horses in North America are well cared for, loved by their masters, and not permitted to be the victims of whims or fashions.

On the other hand, my four years' experience in France and Belgium has left a very different impression. The peasants have no sympathy for dumb animals. I consider the way they treat

their dogs and their horses—particularly the bits they use, the way they drive and jerk their horses, and the brutal way they dock their cart-horses' tails—a disgrace to a civilised world. This war has been thrust upon us because we deserved punishment ; and if we do not better ourselves, then the lessons of this war have been learnt in vain. It has been a war for Christianity ; and let me remind the reader that the humane treatment of dumb animals is one of the duties of Christians.

The horse owes a great deal in Europe to the British lover of horses, and may this grand work continue. A short while ago the *U.S. Cavalry Journal* said : “ The love of the horse seems so deeply rooted into the British character that huge sums of money have been willingly contributed to alleviate the horses' sufferings *on the field of battle.* ”

FRANCE.

CHAPTER II

THE HORSE AS WE SHOULD KNOW HIM

LET us first realise that the horse consists of a living machine controlled by a brain—a mind; and we must always bear in our own mind that the horse's mind requires to be developed, if any success is demanded, before it will be able to command the machine over which it rules.

The horse's brain is proportionately very much smaller than ours, while his spinal cord is much larger. In his infancy the horse's natural instincts are rapidly developed ; particularly is this the case in " wild " horses. His senses of hearing, smelling, and tasting are very acute ; whilst that of sight is good if not harmed by his being kept in ill-lighted stables—a too common occurrence. His sense of feeling varies with the breed. Unfortunately, the horse will bear a lot of pain without showing it to the casual observer. His nerves are finely developed, and in many places are almost as numerous as in the human body.

The horse's muzzle is equivalent to our finger-

tips. He uses the tactile hairs at the end of the muzzle to "feel" things.

Shouting at a horse is a sign of bad horsemanship, because his ears are more acute than ours.

The mentality of the horse varies a great deal, due to his breed and to his "bringing up." The horse, to a very great extent, develops the character and mentality of his trainer. With thoroughbreds and Arabs this is often very marked.

I do not agree with many who state that the horse has no intelligence; if a well-bred horse, after being trained by a master for some months, shows no signs of possessing intelligence, then the master is not fit to train horses. The horse has got intelligence—but it has to be developed.

A great many of the horse's actions are caused through his instincts of fear and self-preservation.

He has an extraordinary memory, which is responsible for our being able to train him to such a high degree. He has also an extraordinary imagination; this causes him to be very susceptible to fear and to magnify everything.

His intense excitability to motion upon the slightest provocation is responsible for his being the valuable animal that he is.

The horse has affection for men who have true sympathy for the horse; the latter, I regret, are few.

A horse is not naturally vicious. A vicious horse has been made so by bad or unsuitable

treatment: in many cases by downright teasing. Youths spoil many horses.

The horse notices things in minute detail, and on account of his good memory he remembers them on future occasions. He associates all things with the sensations he experiences at the time he sees or does those things. Thus in training a horse, whatever the horse is asked to do, a pleasant sensation must be associated with the doing of the act. Thus in jumping, if he is jerked in the mouth, he will associate the pain with the jumping and refuse next time. In reality he should be given a tit-bit after clearing the jump. Therefore a young horse must never be punished because he shows fear and shies at an object.

A horse generally pays attention to one thing at a time. He is also always looking for his own pleasure. Both these characteristics can be used to great advantage in training.

The voice is a most valuable asset. The horse understands the tones (not words) in a marvellous way. He loves equine company as a rule, and generally follows, or copies, another horse. In training this is often resorted to.

Some horses are very proud and love to attract attention. One often sees envy and hatred amongst stallions and sometimes mares.

The horse shows his disposition by such outward signs as his ears, eyes, carriage of head and tail, action, nostrils, etc.

The superiority of man is only imagination on the part of the horse. By our superior mind we deceive him that our strength is superior. Hence a weak trainer may allow the horse to learn that we are deceiving him.

The principle in training, then, is to make him do what we want him to do, little by little, caressing him whenever he obeys, and punishing him, ever so mildly, whenever he disobeys ; and prevent him doing what we do not want him to do. If, however, we find that we are powerless to stop him committing a disobedient act, we must, rather than expose our inferior physical power, let him do it, pretending that we want him to do so. For example, if he starts running back while being held by the head, let him go, and keep on pushing him further back when he inclines to stop. Not with force or in any way calculated to frighten him, because that would be fatal. He will then think he was being pushed back. The prolonged action will probably make him dislike running back too.

Fortunately a horse readily acknowledges obedience. Love must be gained before obedience is taught. We obtain obedience by means of love and fear. By means of the former only, he would be tempted to obey his own impulses ; by a judicial mixture of both, he obeys ours. The knowledge of the secret of imparting love and fear is an acquisition gained by few. It is useless to attempt to

obtain obedience before we have obtained love and the horse's confidence, because before we can obtain obedience we shall have to resort to a certain amount of punishment in order to inspire fear.

If we punish before we have gained confidence, our pupil will hate us ; he will misunderstand the punishment. Physical pain may cause a horse to be apparently disobedient. Muscles and tendons, etc., must never be overtaxed in training young horses. A short lesson, made as interesting and varied as possible, given twice a day is best. Any sign of beads of perspiration standing out on the neck means over-exertion, and the lesson must stop.

Reactions, then, are produced through irritation or pain, or through physical disability. Remember that, as in the raw recruit in the gymnasium, so the horse has to be developed physically, which takes months.

Some of the best horses have been ruined by being asked to jump over five feet the second or third day of their training. Ignorance and cruelty often produce reactions. For instance, a bully hits a horse, the horse kicks, the bully retires ; the horse learns that kicking relieves him of pain. Or, a bad rider keeps digging his spurs in ; the horse bucks him off, and learns that this act is to him an advantage. Again, the horse refuses to do an act ; a weak rider gives way ; the horse learns his superiority.

When a horse has once learnt such habits, it requires tremendous patience and control of temper on the part of the trainer. For a long while he must refrain from punishment, gain the horse's affection, confidence, and then obedience—the latter by mild punishment when desirable.

Whenever a horse is afraid of anything (*e.g.* a motor-car), never punish him; however long it may take, you must get him so acquainted with the object that he knows it will do him no harm. This may be a tedious task. But it is an interesting occupation.

Unless the horse is frightened or in a bad temper, he is particularly susceptible to receiving and appreciating caresses. The best place to pat a horse is on his neck; he loves being rubbed gently high up on the neck, as it resembles the way his mother licked him when he was a baby.

If a horse does not show pleasure at being caressed, he must not be trusted for a while. Caressing is a most valuable aid to our being able to gain his will and affection. It can, however, be overdone. A horse should be treated like a child—kindly, but strictly.

Punishment, whenever given, must be given while the trainer has perfect control of his own temper, otherwise he will do a great deal of harm. The whip is the only weapon to use, and the shoulders and back are the only places to receive the whip. Never hit the head, legs, or belly, and

do not stand in front of the horse while hitting him.

To avoid leaving too deep an impression upon him, caress him about five minutes after the punishment. Do not let him think you are his enemy. Punishment must be inflicted, if possible, while the disobedient act is being committed. For example, while a kicker's hind legs are in the air, he should be struck under the belly with a whip by another man. This is the one occasion when the whip should be used on the belly, and there is one occasion when a horse should be checked in the mouth by its rider—when it is about to kick. A horse must never be punished when in fear, and above all things do not punish him when he is doing his best. How often do we not see wretched boys and men whipping, or jerking the reins, when the willing horse is doing its best.

As a horse is so susceptible to fear, we must be very careful not to cause him fear beyond that necessary to obtain obedience. A good horseman will always detect the preliminary signs that precede such actions of fear. The human voice will generally produce good results. One's own presence at the horse's head, or the company of another horse, will probably dissipate fear.

If a horse is suffering from exuberance of spirits, he should be lunged round the school or field until he has quietened down; then it will be possible to train him. The early portion of the horse's train-

ing should be done dismounted, the trainer remaining near the horse's head. In teaching him to perform actions, we must give him indications that he can understand, things suited to give rise to the actions we require. He will thus associate certain indications or aids with certain movements, and in time, on account of his memory, we shall only have to give the slightest indication of what we require and he will perform the act. Music has often a soothing effect, and is of great use in teaching the canter and other paces.

I think the greatest enemy the horse has is the horse-dealer. I wish the cruelty perpetrated in some dealers' stables was known to those who have the influence and power to stop such practices.

Let me conclude this chapter with the reminder that kindness and common sense alone will make a horse—cruelty never.

CHAPTER III

FOODS AND FEEDING

HEALTH is the normal state of the body—disease is an abnormal state. To keep a horse in health he must be properly exercised and groomed and properly fed—*i.e.* given the right amount of the right food in the right proportions at the right time. Successful feeding is only possible with minute observation. Horses feed better, as a rule, when in company. All horses in one stable should be fed at the same time.

As the horse has a very small stomach in proportion to the size of his body, small feeds only must be given. For a horse of 15.2 hands in height, 3 lbs. of oats is ample at each feed, mixed with a double handful of chaff (1 lb.). And, unlike our own digestion, which only takes place properly after the meal, in the horse there is no gall bladder, and his digestion is continuous. The flow of the gall or bile from the liver is continuous, and therefore there should always be some food in the stomach to produce the best results. Horses, if

undisturbed, may graze for twenty-two out of twenty-four hours. A horse should always be allowed to pick at grass or leaves, etc., whenever an opportunity offers. The only times he should not be given a big feed is previous to fast work, when a loaded stomach will interfere with the full expansion of the lungs; and secondly, just previous to being watered, as the water will wash some of the food undigested out of the stomach. Grazing on the sides of the road, etc., will always do good and never any harm. A good horseman, when he dismounts from his horse or his carriage, will let his horse get his head down to pick at grass, etc. The amount of food given to a horse must depend on the exercise he takes. Therefore, as a rule, his food varies from day to day. Likewise, the composition of the food must vary.

All food contains five important elements—*i.e.* flesh or muscle-producing, starches and sugars, fats, bone-producing, and wood fibre. The remainder of the food is water, which in carrots is 87%; potatoes, 75; grasses, about 75; hay and straw, about 15; oats, barley, rye, wheat, beans, and peas, about 14; maize, only 10.

Of the flesh-producing ingredients the percentages are: the cereals, 10 or 11; beans and peas, 24; linseed, 20; carrots and potatoes, 2; grass, 4; straw, much less; meadow hay, 9; and clover hay, up to 14.

Starches and Sugars: oats, 57; maize, up to 70;

carrots and grass, under 10 ; straw and hay, about 40 ; beans and peas, about 50.

Fats : oats, $5\frac{1}{2}$; maize, 5 ; all other cereals, about 1 ; roots and grasses, less than 1 ; hay and straw, 2 ; linseed, up to 37.

Bone : oats, linseed, beans, and peas, about 3 ; other cereals, less ; roots, about 1 ; and hays and straws, from 5 to 7.

Wood Fibre : oats, 10 ; maize, only 2 ; all other cereals, less than 5 ; roots, 1 ; hay, 25 ; straw, 36 ; pea straw, 42 ; and grasses, 5 to 9.

The exact compositions of the various foods can be obtained from *Modern Horse Management* or other books.

Oats, on account of its high amount of fibre, which is necessary to maintain health, and its fairly high fat and low starch and moderate flesh-producing, is by far the most valuable food we can give the horse.

Maize comes next, but its drawbacks are its high starch and low fibre. It is too heating for blood horses, but more suitable for draught horses and mules.

For horses exposed to cold and damp, beans and peas, containing high flesh-producing ingredients, are used, but for ordinary work they are much too heating to the blood.

Carrots produce the opposite effect, and so do grasses.

The compositions of foods have little bearing on

their digestibility. Carrots and maize are the most digestible, then come bran, barley and beans, oats, wheat straw, and meadow hay.

An older horse requires food with more flesh-producing ingredients.

The only sure way of ascertaining if a food is suiting a particular horse is to watch his dung, which of course should be done at all times by a good groom. If it is abnormal, particularly slimy, or fetid in odour, then the horse's food is unsuitable. The normal fæces should be passed without undue exertion, and are moderately soft, fairly well formed and brittle, light in colour (never dark), moderately damp, and free from odour and slime.

All food must be free from mould or sour smell; all mangers and utensils must be scrupulously clean and smell sweet. They must be well cleaned every day and scrubbed out after a mash.

Great care must be taken to see that a horse has eaten its feed before saddling or harnessing it up. If a horse leaves some of its food, then clear it all away and give it a half feed next meal. In any case of irregularity, take the horse's pulse and perhaps temperature. Overfeeding of oats is a very common fault. If a horse stays in, he must get half oat rations or you will run the risk of laminitis, lymphangitis, or azoturia the following day.

Whenever possible, give the horse a hot mash the night before his day of rest; and, if possible, give two hot feeds a week.

Whenever a horse is fatigued or heated, do not give him oats. If fatigued, give a hot gruel; if heated, give hay. (See notes on Watering, p. 35.)

Before feeding grain it is better to feed a little hay; chaff must always be added to the grain in the proportion of a large double handful to each feed.

Grain should be crushed whenever possible. Crushing oats increases its value by 10%. Remember that a horse requires bulk, that is to say, hay or other herbage. A horse of 15.2 hands requires at least 12 lbs. of hay a day, four of which should be cut into chaff.

All hay seeds, particularly in baled hay, should be shaken out on a sheet or concrete floor, soaked in cold water all day, and added to a hot feed or poured over the oats. Most of the goodness in hay is in the seed. Do not soak for more than twenty-four hours. A horse of 15.2 hands requires from 10 to 12 lbs. of oats a day.

The best routine is as follows: At early stables feed 1 lb. long hay while cleaning out the stable; then water (unless very cold, when it is better to wait until an hour after feeding the oats) and feed about one quarter of the oats. At noon, feed a similar ration of oats, mixed, of course, with chaff. After feeding, give 2 lbs. of hay. About 4.30, water and give another one quarter ration of oats and chaff. And at eight or nine p.m., water, give last quarter of oats and chaff, and the remaining 5 lbs.

of hay. That is allowing for 4 lbs. cut up into chaff—a total of 12 lbs. hay and 12 lbs. oats. Whenever green fodder is procurable, give 6 or 8 lbs. a day, if necessary cutting the hay down by 2 lbs.—3 lbs. of green fodder equal 1 lb. of hay. The green should always be mixed with the long hay. Fodder should be fed within twenty-four hours of cutting.

Unless a horse is in a separate stall, where he knows he cannot have his food stolen by another horse, do not put the oats and long hay in front of him at the same time.

Stablemen must see that horses are not allowed to eat their droppings. Such a habit means the horse requires a few doses of bicarbonate of soda (1 teaspoon). It is a bad habit easily acquired by idle horses, generally geldings. The prevalence of this habit in the Army is due to insufficient bulk in the forage ration.

Whenever a horse fails in his feeding, examine his tongue and teeth. Look for worms in his droppings and for whole oats passed.

Do all that is possible to mate horses and to keep them quiet and not worried while feeding and at night. See that their floor is level and bedding in good order, and get them to lie down as much as possible.

Do not worry your horse in the stable or at work. Always dampen the chaff; if possible with brine. Always give the horse salt. A couple of

ounces a day is sufficient, or a lump of rocksalt should always be before him. In the spring a clean, freshly cut sod should be kept in the corner of the manger, renewed every other day. This acts as a medicine, and most horses love it.

Horses affected in the wind should always have the hay wetted, preferably with brine. Give very few oats and no beans or peas to horses that suffer from laminitis or lumps on the skin.

Regularity and system are two essential factors to success in horse management.

Oats.—It is important that every horse-owner should know the characteristics of good oats. They should be plump, short, hard, dry, floury if bitten, and contain no bitter taste, without bad odour, light in colour, or black, never yellow. Good oats may smell slightly sweet. Should rattle if shaken in the hand. A handful when squeezed should not be “spongy.” Husks should be thin and the kernel bulging through; uniform in size. Should weigh 36-42 lbs. to the bushel. The Army weight is 40 lbs. to the bushel. They should be cleaned before sold. A cavalry mess tin holds 1 quart, or $1\frac{1}{4}$ lbs. of oats (at 40 lbs. to the bushel).

Bad oats are thin, long, spongy (due to thick husks), long-bearded, dark yellow (due to being kiln-dried after becoming damp), strong in odour, and have very small kernels. Foxy oats are those that have become fermented due to damp; they are dark, have an acrid smell, and are soft. Kiln-drying

restores the hardness and removes the smell, but makes them darker. These are sometimes bleached with sulphur, when the sulphur can be tasted. Musty oats or mouldy oats can be easily detected. Long-bearded oats are often machine "clipped"; this can be seen by examination.

Maize (corn or mealies).—Unsuitable for young stock; contains too much starch and sugar. Should be dry, bright, hard, sweet in taste, and no distinct odour. Free from dirt. Should be crushed, and better if mixed with other grains. Good for hard-working horses. Weighs 60 lbs. to the bushel.

Barley should be plump and hard; thin, wrinkled, pale golden husk; no distinct odour. Must be fed boiled, crushed, or parched. 54 lbs. to the bushel.

Rye is a poor food for horses.

Wheat is useful. Fed crushed, parched, or mixed with other grain, or as flour. Must be fed dry. Has been fed up to 7 lbs. per diem.

Beans and Peas.—Must be hard and dry, light in colour, and sweet in taste. Should be at least one year old. Contain very high percentage of flesh-producing elements—hence are very nutritious, but "heating." Feed up to 1 lb. a day. For horses at pasture in winter give up to 7 lbs. a day.

Linseed.—Most valuable conditioning food. Contains great deal of fat. The grain must be plump, free from dirt, and bright in colour. Never feed raw. Soaked in cold water for twenty-four hours,

or boiled for six to twelve hours, forms a good food. The jelly formed is readily eaten.

Linseed Mash is made by boiling $1\frac{1}{2}$ lbs. in water for eight hours to fairly thin consistency. Add 2 lbs. bran, 1 oz. salt; stir, cover, and leave until cool enough to feed.

Linseed Tea, which is very good for inflamed mucous membranes or urinary troubles, is made by boiling 1 lb. linseed in 1 gallon water for twelve hours. Pour teacupful on oats at night.

Linseed Cake should be broken up and soaked in cold water for twelve hours. Keep vessels clean.

Linseed Oil, raw, should be poured on the oats; 2 ozs. a day at evening feed.

Bran from the modern flour mill contains very little nourishment, but is a very useful food. Added to oats, prevents bolting. Is cooling. It should be dry, floury, free from lumps, heat, or bad smell, and should be flaky and yellowish-red in colour.

Any amount of it can be fed. Can be fed dry or damp. The condition of the droppings will act as a guide.

Bran Mash, made by scalding 2 or 3 lbs. in bucket of boiling water, adding 2 ozs. salt, stirring, covering, and leaving to cool sufficiently.

Carrots, Turnips, Beets, Mangolds, etc.—Should be fed 2 or 3 lbs. a day in spring, in lieu of few oats. Mashed or cut lengthways. An hour's boiling is sufficient. Add salt.

Sugar is sustaining and fattening, therefore useful

in cold weather. Is fed considerably in the form of molasses. Sugar-beets are generally liked.

Oatmeal is used to make gruel.

Hot gruel is most valuable to a tired horse after a hard day's work. Cold gruel is useful on very hot days.

Gruels are made from other meals as well as oatmeal, and are made by pouring the water, hot or cold, on to a few handfuls of the meal in a bucket and well stirring.

The value of salt, green fodder, grazing, and pasturing cannot be overestimated.

Every horse should have two weeks at pasture in the year. It is better to remove his shoes; at any rate remove his hind shoes. For thoroughbred foals there should be plenty of rye grass and timothy, and scarcely any clover. The pasture should be ploughed up every eighth year and one oat crop sown. A shed should be provided in all pastures, and where possible a hedge on one side to break the wind. Be sure there is plenty of good water.

Gorse is suitable for old stock only. Must be chopped in gorse cutter or fine-cut chaff cutter. Cut from the field each day; mixed equally with straw chaff. Cut only from early October to end of December.

A great deal of waste from the kitchen, excepting tea-leaves and fresh meat, can be saved and boiled up, forming a kind of stodge, which most horses

love at their evening feed. Bully beef can be added to this with advantage. Add plenty of salt.

Hay is an important food, as it provides for most of the all-essential bulk. Insufficient bulk causes crib-biting, weaving, eating the dung, and a constant feeling of unsatisfied hunger. Whatever kind it may be, it should be greenish-brown in colour, not yellow or dark brown. Crisp and brittle, moderately hard, well saved, and about one year old. Sweet in odour. Have an abundance of flowering heads. The grasses flat and not confused. Each specimen of grass should be good. Musty or mouldy hay must not be fed. Slightly mow-burnt hay will do no harm. Washy-looking hay shows that it has been badly saved.

☞ *Straw* is a valuable food. Should be chopped up and fed with oats or chopped green fodder.

MEASURE FOR GRAIN

2 pints	= 1 quart
4 quarts	= 1 gallon
8 gallons	= 1 bushel
8 bushels	= 1 quarter

Oats at 40 lbs. to the bushel equal 5 lbs. to the gallon, or $1\frac{1}{4}$ lbs. to the quart.

FEEDING AFTER FOALING

Remember the mare has to feed her baby as

well. For several weeks feed crushed oats and boiled oats at night. Add linseed meal. Feed her often in small quantities. Let the foal nibble at the mother's feed if it wants to.

CAUSES OF THINNESS

Remember that no two horses require the same ration. Try boiled oats, with linseed tea and chopped roots added for a week or two at every feed, and give light exercise. Give lots of fresh air and good bedding. Attend to sanitation. Then ask yourself the following: Does he get his feed? Does he get sufficient bulk (*i.e.* hay, straw, or green fodder)? Is he fed regularly? Is he watered sufficiently and regularly? Does he bolt his food? Do other horses steal from him? Do his teeth bother him? (There may be a piece of wood wedged in between his molars.) Is his tongue sore? Has he worms? Are his droppings and his urine all right? (Remember that normally a horse's urine is cloudy.) Is his bedding being left under the manger during the day? Is the hay and grain good?

Underfeeding at present is more shamefully common than ever. A man who would underfeed a horse should be imprisoned and fed on bread and water.

Remember that as a horse gets fatter, the rate of increase, per unit of food, decreases.

BOLTING THE GRAIN

This is a wasteful and bad habit. It can be prevented by increasing the amount of chaff, by crushing the oats, or by putting large stones in the manger or nose-bag. The wider the manger, so that the feed can be spread out in a thin layer, the less is the chance of bolting.

WATERING AND WATER

A horse will die much sooner from lack of water than he will from lack of food. And it is impossible to keep a horse fit, or with flesh over his ribs, without an ample supply of good water.

On an average a horse requires 8 to 10 gallons. In winter it will be much less; in summer perhaps double.

Always give a horse all the water he wants at all times, with only three exceptions. Two of these have been mentioned before, namely, after feeding grain, in which case the water, as it passes through the stomach, will cause the grain to be washed out before it is digested, and when in the small intestines the grain will swell and cause stoppage. Secondly, just previous to fast work, when all available space in the abdomen will be required to allow the lungs to expand. It must be remembered that water passes at once through stomach and small intestines, into the large colon and cæcum on the off side of the horse. These

large guts hold up to 30 gallons. And thirdly, when a horse is very fatigued after a day's hunting, when warm gruel should be given.

A large bucket holds about 4 gallons.

It is best to water always before a meal—that is, to water four times a day—and always after exercise or work as well, as it is after work that a horse drinks best. In very cold weather, as mentioned before, it is not good to water early, but better to wait for an hour after finishing the grain. It is safer to wait for one and a half hours after feeding grain before letting the horse drink its full.

Whenever a horse returns heated, give him as much water as he wants, provided that he is walked around for ten to fifteen minutes until the water has been absorbed into the circulation. There is then no danger of driving the blood suddenly from the intestines to the feet and causing founder (laminitis), which might very easily occur were the horse put straight into the stall. It will be found that horses that are used to being watered whenever they return from work keep much fitter. Nature demands that whenever work has been done, and a greater amount of perspiring has been going on, water is necessary to replace that secreted by the sweat glands, and that unless this water is forthcoming early, the horse will derive considerable harm. Nature controls the temperature of the body by pouring sweat on to the coat, this evaporates, and as all liquids absorb heat (*i.e.*, cause

a drop in temperature) when they evaporate, the skin of the horse becomes cooled; this cools the blood in the superficial blood vessels, and finally the whole system. It is, then, the act of perspiring that prevents the body temperature from rising. The drier the atmosphere, the faster will be the evaporation and the more rapid the cooling process, and the more water will be required. Perspiring has another beneficial effect which will be discussed under grooming.

Horses should never be trotted to or from water. Give the horse all the time he wants while watering, at least five minutes. He may raise his head several times before he has finished. Keep quite quiet at the water trough, and do not allow one horse to move back until all the horses at the trough have finished. Always take the bit out and loosen any girths before watering. If the horse is frightened, take him gently and encourage him. Some horses drink best in company.

At public horse-troughs do not allow the horse to drink where there is scum or foam from other horses. All troughs should be thoroughly scrubbed out once a week. Public troughs must have running water. Some stables are fitted with running water, that is before the horse all the time. If each horse has a separate vessel, the plan is a very good one. Standing water must be replaced three or four times a day. If a bucket is left in the stall, it should be fastened in the corner.

As mentioned above, make sure that a horse at pasture has plenty of good water to drink.

Never water a horse from a bucket that has had creolin in it.

If a horse refuses water, see if there is not a disagreeable odour or something else wrong with it.

If a horse is ridden into water, only a snaffle or bridoon should be used.

WATER

Good water is not necessarily the clearest. Horses prefer soft water, even if cloudy, to water from the mains. Good water should be fresh, pure, tasteless, clean, aerated, fairly clear, colourless, fairly soft, and odourless.

Very bad water can be filtered through a sand-bed, cinders, or charcoal.

Horses watered on hard water often have harsh, staring coats due to derangement of the stomach. Besides the medicinal value of common salt, it increases the thirst and causes more water to pass through the system, which means better general health.

Regularity in watering (unless the horse has water before him all the time) is as important as regularity in other stable details.

CHAPTER IV

CONDITIONING—EXERCISE—CARE ON THE MARCH
AND IN CAMP—TRANSPORT OF HORSES—
CLINICAL NOTES—DESTRUCTION

BLOOD, power, and good looks, without condition, are of little value to a horse that is required to do strenuous work.

By condition we mean a body well covered with flesh that is hard, a hard and firm neck, a glossy and silky coat, a bright eye, fresh looks, a good appetite, good digestion, normal dung and urine, plenty of spirits, no running up light towards the flanks, and capability for doing long and strenuous work.

Condition must not be confounded with fatness, which is distinguished by a certain flabbiness and a distended abdomen.

Young horses require very careful attention when first brought to work. Bad feeding, irregular feeding and work, not sufficient gradation in increasing the hard food and work, will cause a young horse to lose his flesh and bloom, which will take a long while to recover.

It takes six to nine months' very careful feeding and working to get a horse that is in very bad shape into good condition. It takes two to three months to get a horse that has been out to pasture for four or five months fit for hard work. This period will be shortened if the horse has been fed on grain while at pasture. Watch his dung, his sweating, his wind, and his urine. The lungs will not stand fast work before the horse is in moderate condition. Long-continued fast work when the horse is fat produces a broken-winded animal, which is much more serious than larynx trouble (whistling). A horse whistles when he inspires.

Each horse's habits and peculiarities must be thoroughly appreciated, as no two horses can be treated alike to produce the same results.

The work, the amount of grain, and the amount of grooming must be increased each day until the muscles show "firmness," when the full work of at least two hours' walking and slow trotting must be given, on full oats and a good hour's grooming a day, with twenty minutes' brisk wispings in the evening. A good rub down and wispings must be given immediately on return, while the horse is still warmed up. Condition is not produced by fast work. After good condition has been reached, then the muscles will be developed by cantering up hills, over hedges, or trotting in a trap up slight hills. A poor groom will never get a horse into good "condition."

Jogging takes off flesh.

Give your horse lots of room and all the rest you can at night. See that his bedding is good.

Pleasure horses are often overfed and more often under-exercised.

CONDITION POWDERS

Most of these on the market are of little real value.

A small tablespoonful of nitre (saltpetre or potassium nitrate), given once or twice a month, may clear the kidneys. Never let a groom give this when he thinks fit.

For horses in wretched condition, exposed to the vile climate of Flanders, I worked wonders with the following powders: Nux vomica, $\frac{1}{2}$ teaspoon; gentian, 1; fenugreek, 1; ginger, 1; ammonium carbonate, $\frac{1}{2}$; and iron sulphate, $\frac{1}{2}$. In each case use the fine powder. Mix thoroughly. Feed this dose at night in the feed for three or four weeks.

Fowler's solution of arsenic in teaspoonful doses at night for a week is a good tonic. This must not be continued too long.

Remember that it is "condition" that prevents saddle galls, collar galls, harness rubs, sprained tendons, ligaments, and muscles. It is condition, slightly on the gross side, that pulls a troop horse through a hard campaign on short rations. Added to this must be a good horsemaster and absence

of worry. See that all your horses have ample fresh air always.

EXERCISE

Exercise includes any form of work and grooming. Every organ and portion of the body is affected by exercise, and by being stimulated in their functions induce a greater blood supply throughout the whole body.

Want of exercise causes ill-health, a sluggish liver, an accumulation of poisons in the system, and predisposes the tendons, muscles, and ligaments to receiving injuries.

Lymphangitis, founder, and azoturia are the result of irregular feeding and exercise. Vicious habits, as crib-biting, kicking, weaving, and eating dung are the result of want of exercise.

The value of exercise depends on its duration and not on its speed. At least two hours' steady walking and trotting (particularly up slight inclines) is necessary every day, except on the horse's weekly day of rest, when his hard feed must be cut in half and a mash given the previous night.

After exercise the legs should be well massaged for twenty minutes, which is much better than using bandages. If bandages are used on hard ground, they must be lined with cotton wool and taken off on return, the legs being massaged. The real use of bandages is to reduce swellings by means of pressure.

More horses are harmed through lack of exercise, or through irregular exercise, than through too much.

Melbourne, when he first went to the stud, never got any exercise except to pay visits to the mares. All his mares proved barren, and he nearly died of constipation. We read in *Bell's Life* in 1849 that an experienced groom took charge of the horse and gave him three hours' exercise a day at the walk. He got sixty-four foals out of sixty-eight mares that year. Exercise produces the best results if given twice a day.

Outside every stable there should be, if possible, a breast-line stretched between posts or trees, to which the horses should be tied for two or three hours during nice weather. This "taking the fresh air" does the horse a tremendous amount of good. Care should be taken that the horses are not allowed to eat the bark of trees, as this will kill the trees.

CARE ON THE MARCH

This includes all horses while at work.

Put yourself in your horse's place whenever in doubt. It is pitiful the number of men in charge of horses who are not fit to look after them.

Never kick a horse, yell at him, tie his head up so that he cannot graze, jerk him in the mouth, or in any other way try to make his life miserable.

Be cheerful and keep your horse happy, and make those around you happy.

Give your horse tit-bits. I find that the majority of those that have been through hard fighting with the Cavalry get very fond of their horses. A lot of cruelty is seen due to the wrong men being sent to the Cavalry in many instances. On the line of march the horse is a great companion to any horse-lover. One of the commonest faults is the bad leading of troops, irregular pace. The pace must be regular. The trot not to exceed seven miles an hour and walk never over four. Some leaders ride a thoroughbred that walks at five miles per hour and expect the column in rear to keep up. Common sense is the first essential with good horsemastership.

There should be a ten-minute halt every hour, when all girths must be loosened, packs removed, and the horses turned so that they can graze on the side of the road if there is any grass. This gives more room on the road, because the horse will hold his head and neck beyond the gutter, and it allows the men to sit down at the horses' heads if there is a bank. The order that a horse's head must be "turned to centre of road" for fear of any one passing being kicked is a senseless one. The horse is often the unnecessary victim of Red Tape and lack of common sense.

Feeding on the march must always be done by "quantity," not "time." That is, feed half a

feed, quarter of a feed as the case may be ; never say " Feed for ten minutes," because slow feeders will either starve or acquire the pernicious habit of bolting their feed.

On long marches the rider should walk during a considerable part of the period when the horse is walking. Trots should not be over ten minutes in duration. This, of course, depends so much on the efficiency of the riders. The only way to keep good march discipline, which is essential to save fatigue, is to have gaps in between every fifty or sixty files (say each squadron), large enough to allow each unit to increase and decrease its pace with a certain amount of warning. Thus " bunching " will be prevented. To get the whole unit (squadron) to move off together like a long train, a double signal must be passed right down the column at a few seconds' interval, every one commencing to change the pace on receiving the second signal ; every man must keep thoroughly awake and must " ride " his horse—*i.e.* he must dictate the pace and not the horse. A bad rider lets his horse " shoot " off suddenly, and he ends up with a bump against the hindquarters of the horse in front. There is no excuse for this sort of seesawing ; it means that the officers and N.C.O.'s are not up to their job, and that the men require skilled tuition. A unit can be taught to march properly in a week, if the instructor knows how to teach it.

Be sure that the nosebags are free from holes, tied on with a knot that cannot come undone, and that they are clean and not stuffed with kit. The only sure knot is a bow, with the loose end pulled through the loop of the bow, then the loop pulled tight. Never sit in the saddle in a sloppy manner, and do not allow sharp rowels in the spurs. Always be most careful in putting on the blanket, saddling up, and biting up. On a very cold day warm the bit for a few minutes in your hands before putting it in the horse's mouth. Keep the girths and all harness that is in contact with the horse very supple with dubbin and saddle soap.

Never sit on your horse when there is no necessity for it. Examine the girth, saddle, etc., and the shoes at each halt as well as before starting out. The feet are very important; look for sprung shoes, loose nails, loose shoes, stones, broken shoes, rough clenches.

Whenever possible a saddle horse should be ridden on the side of the road or on tracks that have no macadam on them. It does not do a harness horse so much harm to trot fast; but a horse under the saddle, with the extra weight of the rider, etc., must never be trotted over eight miles an hour, on hard roads not over seven. If a faster pace is required, make the horse canter, or, if needs be, gallop, whether the going be soft or hard.

Nurse your horse early in the day, and thereby keep a reserve in hand.

When coming home the ideal way to water is to do so a few miles from home, and come in quietly afterwards. On reaching home look after your horse, groom him and make him comfortable, and then look after yourself.

Whenever possible a man should have charge of the same horse, and the feeling must be encouraged that the horse is his own property. Give praise when it is due. Try to get the horse into a stable or shed during the night.

CARE IN CAMP

Many of the points in the above section apply to horses in camp.

The standings should be chosen under the following conditions: protection from mud, then from wind, and then from rain. Be sure that the horses are mated. Slow eaters also together. Poor horses together. All tied to breast lines. At least 6 ft. to a horse, *i.e.* a 66 ft. rope would hold twenty horses comfortably. The ground must be even. In wet weather a drain should be cut at once. An alternative position is advisable.

A heel rope is not recommended unless a horse is a bad kicker. Do not give the horse too much head rope. The knot should be secured from slipping up and down, or the horses will become bunched up and will not be able to lie down. Feed hay in hay-nets, either one to each horse or one to

every two. Oats and hay should not be before the horse at the same time.

If a horse throws up his head with nosebag on and loses a lot of his oats, put the head-collar on outside the nosebag. If this fails to do good, tie a rope from the head-collar jowl-ring to a girth, similar to a standing martingale, while the horse is feeding; or shackle it to one foreleg just above the knee.

Mix all the forage and fill bags and nets over a large sheet. Shake the hay-seeds out on a similar sheet. This saves a tremendous amount of forage.

Obtain green fodder whenever possible and mix equally with hay in the hay-nets. If chaff-cutters are not available, cut up a few handfuls of hay with a sickle. One-inch lengths will suffice.

A gentle slope is best for a camp site. All manure must be removed or covered with earth within twenty-four hours. The horse-fly lays her eggs only on fresh manure, which take over twenty-four hours to hatch. A lot of flies around a horse camp shows bad horsemastership.

Obtain bedding from coarse grass, reeds, leaves, etc., whenever possible. Be careful that horses are not allowed to eat sand, sawdust, or cinders. If these are used for bedding, keep them away from the head line. Stablemen must keep the dung swept up and prevent a horse eating its dung.

Do everything that is possible to get the horses

to lie down at night. Fidgety and quarrelsome horses must be kept right away.

TRANSPORT BY RAIL

In boxing a horse, use common sense. If he will not go in, it is because he is frightened ; give him a lead with a quiet old horse or encourage him by gentleness. Never use a whip or shout or push him in. A good method, if the horse becomes obstinate, is to pass a thick rope round his hind legs above the hocks, and for three or four men on each side to draw the horse slowly in. Above all things, make the horse associate entering the train with pleasant sensations, then he will give no trouble next time. It is a business proposition apart from the humane element.

Water and feed before boarding. Put sand, ashes, cinders, or sawdust on the floor to stop slipping. Do not use straw ; it is dangerous. A man should travel with every horse-car or truck. The axle-boxes should be occasionally examined : a hot box will often set alight to the car. Proper horse-boxes or cars have mangers for feeding from. Give the horse plenty of hay to keep his attention.

Pay particular attention to sanitation. The insides of horse-boxes should be whitewashed after use.

Harness and saddlery, unless the journey is under six hours, must be taken off and packed in

separate trucks. Before a long journey of several days the oat ration must be reduced to perhaps a half for the previous couple of days. A little walking exercise should be given every twenty-four hours if possible.

Do not allow draughts, but see that there is plenty of fresh air all the journey.

In cattle trucks, where six or eight horses are put in side by side, mate the horses and pack them closely together, as then there will be less risk of kicking. It is better to bandage a horse's tail before going aboard.

Great care must be taken that all gangways are secure and all doors properly fastened.

TRANSPORT BY SEA

As a horse normally is unable to vomit, great care must be taken not to give the horse too much to eat before going on board and while on board. He must be prepared for the previous week or more, by being given a very much reduced oat ration and hot mash for the last three or four nights. He will then go on board in a fairly soft condition, which is necessary. While on board only a very little oats, say 2 lbs. a day, must be given, whilst up to 10 lbs. of bran a day will be given in lieu of any other grain. 10 lbs. of hay are sufficient for a horse of 15.2 hands. Plenty of salt must be given every day, and all the fresh

water the horse will drink. To prevent sea-sickness (which does not mean vomiting), vinegar should be added (an ounce to every bucket) every fourth day to all the water. I have found this work most satisfactorily. If horses are constipated, the bran must be fed wet.

The same points apply to loading the ship as in loading a train. If slings are used, see that they are properly adjusted, and try not to frighten the horse. Do not water heavily before slinging.

Ventilation is of great importance. Horses must be cool and have fresh air or they will die on board ship. Their heads can be screened from draughts with sacks. The floors of the stalls should be covered with sand or sawdust; straw is too dangerous. Whenever possible, exercise should be given on the decks and passage ways; they must be spread with ashes, sand, or sawdust to prevent slipping. The dung must be cleaned away every day. The stalls on a ship of over 7,000 tons should be wide enough (say 4 ft.) to allow a horse to lie down. When it is very rough, an extra padded bale should be slipped in to keep him from tumbling about. Do not tie him up short by the head. Have a manger in front of him. This, as well as the padded breast-pole, should be movable, for letting the horse out for exercise. Be very careful that the sides of the stall touch the floor, or he may get his foot underneath and break his leg.

Watch for swellings of the legs ; hand rub them, if swelled, for half an hour a day, and give exercise, if possible.

Watch his dung. If he becomes constipated, give him liquid mashies and roots, not medicines. Roots are valuable at all times on board.

If hind legs become much swelled, put on cotton-wool lined pressure bandages. Remove every twelve hours, hand rub, and put on again.

The men must stand by their horses if the sea is very rough. The whole of the inside of the ship must be whitewashed with lime before the horses go on board. Before coming ashore at the end of the trip, increase the oats a little for a day or two, and take one to two weeks to bring the horse back to normal feed.

CARE OF LEATHER

All leather requires to be kept, firstly, clean with cold water and a good sponge, and, secondly, quite soft with good saddle soap, and a good dressing of dubbin once every three to six months. Soft soap and other soaps that contain soda carbonate are very bad for leather. Boot polish does saddlery a lot of harm, and shortens the life of a saddle very considerably. Three-ply girths and breeching are excellent, as dubbin is kept inside all the time. Army cruppers are made the same way. Sores from these are impossible if they are kept clean.

Keep leather covered up with a cloth when not in use. The ammonia in a stable does a certain amount of harm. Never put leather near the ceiling in a room lit by gas, or in a loft over such a room. All leather should be given a week's "holiday" at least once a year, soaked in good dubbin free from soda.

PULSE

The normal pulse of a horse is 36 to 40 per minute, generally taken at the angle of the jaw, on either side, on the submaxillary artery. Just in front, or below, the throat lash, on the sharp edge of the inferior maxilla jawbone, will be found three cord-like vessels; the lower one is the artery. The pulsations can be felt with a little practice. If the pulse goes up to 50 and remains there, the horse must be left in and given veterinary attention.

TEMPERATURE

Normal is 100° Fahrenheit, generally taken at the anus. The thermometer must be wetted and quietly slipped in along the first finger, and the tail kept depressed, so that there will be no danger of the thermometer becoming dropped. Some thermometers register in one minute, but it is safer to allow three minutes. A rise of one degree is not serious, unless the pulse is bad.

RESPIRATIONS

Normally the horse breathes 9 to 12 a minute. This is taken by rolling forward the rug and standing behind the horse. A fast, short respiration generally means lung trouble or founder (laminitis), or possibly peritonitis.

BALLING AND DRENCHING

These are very simple operations if common sense is used. It is necessary to make the horse like them, so that next time he will cause no trouble. Nothing must be done to frighten him or hurt him. Patience must be used.

In balling, take the ball, say, in the right fingers, ball and fingers squeezed closely together. With the left hand take the tongue gently and draw it towards the off side of the horse's mouth, between the molars, so that he cannot close his jaw. Then quietly slip the right hand right over the back of the tongue, and drop the ball into the cavity at the back of the mouth (the foramen cæcum); at the same time let go the tongue and withdraw your right hand. The withdrawal of the tongue will cause the ball to pass into the pharynx, whence it will slip down. The passage is well oiled by the mucus glands. In giving a chloral hydrate ball, be very careful the horse does not bite it, or it will burn his mouth badly. Immediate flushing out with water is the only cure.

Make much of the horse after he has had the ball.

Drenching is more simple. A beer or large soda-water bottle is best. Allow for a certain amount of wastage in mixing up drench. If turpentine is used, add at least 1 pint of water to every ounce of turps. The horse's head is held up to a horizontal position, and the mouth of the bottle inserted where the bit goes (interdental space), and a few ounces are allowed to flow on to the tongue. The head is tipped up a little further, and if, after a while, the horse does not swallow, get an assistant to gently press up the little bony knob (the hyoid bone) that is situated between the jowlbones, below the base of the tongue. Do not rub his throat or shake his head. As soon as he has swallowed it, give him a little more. It does not take long, and soon he will take it readily. If possible, the drench should be made palatable by adding sugar.

EXAMINING THE TEETH

No speculum or other instruments are required. The principle is to keep the tongue between one lateral set of molars with the back of your hand, while examining the opposite lateral set, top and bottom, with the fingers of the same hand. Roll your sleeves up; examine the off side with the right hand and the near side with the left. Try to find sharp points, pieces of wood, or very sharp

edges. Sharp points are often found sticking into the sides of the mouth.

The surface of the tables of the molars runs inwards and upwards. The lower jaw is narrower than the upper.

HUMANE DESTRUCTION

An old friend should never be sold or given away, except to one in whom you thoroughly trust. The most brutal thing one can do is to sell an old faithful servant to end its days (perhaps many years) in absolute misery in a knacker's cart, beggarman's cart, or otherwise to be ill-treated. If you cannot give him a pasture to end his days in, then do the next kindest thing, destroy him humanely.

There are only two ways that I would recommend to the novice: the humane killer (as supplied by the R.S.P.C.A., 105, Jermyn Street, London) and the bullet. I prefer the latter. The safest place to shoot is just above the intersection of two lines drawn from left ear to right eye and right ear to left eye, and direct the bullet upwards at an angle of 45 degrees with the face. The brain of a horse is well above his eyes. Hold the muzzle of the pistol against the forehead. Death will be instantaneous, although the muscles may move for a few seconds.

CHAPTER V

GROOMING, CLOTHING, BANDAGES, BEDDING, CLIPPING, MANES AND TAILS

THE COAT

THE horse's skin, like our own, consists of an inner permanent layer, the dermis, and an outer one, the epidermis. The dermis is highly sensitive, vascular, and its functions are: to give off perspiration from its sweat glands; act as an organ of touch; secrete poisons (through the sweat glands); secrete oil on the inner side of joints (pastern, hock, knee, etc.), known as sebum, and also all over the coat, where they secrete oil into the hairs; and to form the epidermis—*i.e.* outer skin, hair, hoofs, etc.

The latter is insensitive in itself, and enfoliates from its outer surface. The epidermis protects the dermis from injury. The skin is thickest on the legs and back, thinnest inside the joints and between the limbs. Too severe friction on the outer skin causes the dermis to produce a fluid as a protector, which produces a blister.

The hair is of three kinds : temporary, all over the body and legs, shed in the spring and autumn ; permanent, or horse hair, on mane, tail, and fetlocks ; and tactile, or feelers, surrounding muzzle and eyes. The hair of the coat projects obliquely, and can be drawn " on end " by a little involuntary muscle (erector pili) when the horse is cold or frightened.

The sweat glands are most numerous at the base of the ears, then neck, hindquarters, shoulders, and flanks. So a horse uncovered will sweat in this order.

GROOMING

Grooming produces friction, increases the blood supply under the skin, which promotes better health to the organs supplied thereby ; this increased superficial circulation increases the circulation of the whole body, and this improves the health of every organ, and therefore of the animal.

Increased blood supply causes increased perspiration ; this hastens the removal of poisons from the system. Grooming, further, increases the enfoliation of the outer skin, and removes with it all the poisons secreted by the sweat glands. Hence the more grooming a horse gets, which must include both body brush and whisp, the healthier he will be. In fact a horse at work, fed on grain, cannot be kept in condition without systematic grooming. An abundant supply of water, which is necessary

to allow the sweat glands to work freely, is therefore also just as essential. Invisible sweating is going on all the time, whilst visible sweating goes on as the result of hard work, heavy clothing, or other causes. It is difficult to make a horse sweat by means of drugs. A cold sweat is a sign of ill-health, and is caused by an insufficient blood supply in the skin. A healthy perspiration should be thin and wet the coat; globular beads of sweat mean bad condition and too severe work. Hair exfoliates the same way as the cells of the epidermis. Perspiring increases exfoliation of skin and hair.

Good grooming, then, increases the exfoliation and secretion of oil (sebum), but does not increase the growth of the hair. It makes the hair healthy, fine, and glossy.

One cannot have a hard muscle without a well-groomed, glossy coat. The outer cells, after they have exfoliated, form what is called dandruff.

Good grooming, then, is not only necessary to make a horse fit, but it is necessary to prevent diseases and chills, etc. Neglect of grooming when a horse returns from hard work may produce a severe chill, pneumonia, liver diseases, or even death. Despatching horses by train after a day's hunting is not a wise proceeding: the greatest precautions must be taken.

A lazy groom removes the outer dirt; in other words he quarters the horse, but he does not groom, or strap, him. It is better that a horse should

receive most of his "strapping" after exercise, when the blood circulation will be stimulated.

In grooming, the whole weight of the body must be put on to the work, with a straight arm, the left hand used on the body brush on the horse's near side and vice versa. Commence always at the poll on the near side, go right down the neck, forehead, body, hindquarters, and hind legs; then to the other side. Then do the head. The feet should be the first thing to attend to: they must be picked out carefully with a proper hoof pick, not sharp knife; shoes examined very carefully; and in stables the inside of the feet washed out with a water-brush. Do not wet the heels.

Then brush the horse all over with the dandy brush. The English dandy is the only one that will last. The dandy is used in a similar way to which one brushes an overcoat. The brush must be used in a brisk to and fro motion.

Then the body brush, which should be flat and hard, is used thoroughly in a circular motion, to get right to the roots of the hairs. The curry-comb is held in the other hand to scrape the dandruff out of the brush. There is a tendency to scrape the brush too much. Do not use the curry on the joints. But it may be used carefully to remove hardened cakes of mud. Do not knock the dandruff into the manger, but well behind the horse. Tap the curry on the floor.

Then use the wisp, which should be slightly

dampened, with plenty of vigour; bring it down at the full length of the arm with force, except over the loins, and rub the legs well with it too.

Then brush out the mane and tail with the dandy. This must be done lock by lock, the end of the brush only being used at the roots of the hair. With the mane, stand on the near side, if the mane falls to that side; hold the brush in the right hand, and commence at the withers, lock by lock. Do not break the hair. With the tail start at the top and work across in successive layers, exposing the roots of the lower layers by raising the hair above them. Do not brush out any of the hair, unless it is required to make part of the tail thinner. A bad groom brushes out bunches of hair, especially from the end of the tail, and ruins the tail. A comb should only be used to disentangle the hairs and not to pull hairs out, unless the tail is bushy, when combing will gradually thin it.

After this give the tail a brush down on top, and then finish off the whole horse with the rubber, which must be used in the same way as the wisp.

The eyes, mouth, nostrils, dock, and sheath must then be sponged out. The sponge must be rinsed out after sponging the nostrils. Note if there is any sign of discharge from the nostrils. A horse should be thoroughly groomed in an hour, and twenty minutes massage should be given at night and on return from work. A good hand-rubbing on the legs will do a great deal of good.

A wet sponge under the tail will cool a sweating horse very quickly.

If a horse comes in after a long ride, the girths must be loosened at once and the horse watered (see Watering), but the saddle should not be removed for fifteen minutes, to allow the circulation to be restored in the skin. Neglect to observe this precaution often causes lumps to form, due to the minute blood-vessels becoming ruptured.

When the saddle or harness is removed and the back is wet, dry it at once with the open hand. Even if it is dry, give it a few minutes' sharp slapping with the hands to restore normal circulation.

It is more important to groom a horse thoroughly every other day than to half groom it every day. This is important.

To become an efficient groom, you must study an expert and work hard. It will bring you good lungs and good health.

INSPECTION

A horse must be periodically inspected to see that proper grooming is going on. Grooms should understand that such inspection will be made without warning.

CLOTHING

A horse that is kept in a stable should be rugged except in warm weather, and then a cotton fly-

sheet is to be recommended. Blankets or rugs should be dark in colour (as they are warmer) and made of wool. Nothing of a waterproof nature should be used, as they will not allow of ventilation, which is essential. Great care must be taken that the rug is not too tight across the chest—that will hinder lying down—and a proper stable roller must be used to keep the rug from slipping round in the night. Fillet strings around the hind legs are also necessary. If a horse appears to be cold, increase his clothing, but do not stuff up the windows and ventilators. Fresh air will never give a cold. Lack of it will, and many worse ailments. When a horse has been clipped, an extra thick rug must be put on and all floor draughts avoided.

Waterproof sheets are used with advantage on horses doing slow work in very wet weather.

In very cold weather loin clothes on horses that are left standing about are recommended.

Be careful that the roller or surcingle used around the rug does not in any way press directly on the withers.

A horse is better in the open than in a draught. A waterproof sheet should be used in bad weather for horses in the open, used over the rug, and removed when fine.

BANDAGES AND THE CARE OF LEGS

Woollen bandages put on loosely are very good for horses travelling by rail or boat, or when sick,

especially with pneumonia. Puffed legs are the result of idleness after severe work. A horse requires two hours' walking exercise after a day's hunting. Puffed legs may be the result of too much oats. They are reduced by exercise, hand-rubbing, and a judicial use of "pressure" bandages. All bandages should be removed every twelve hours and the legs well rubbed.

Pressure bandages consist of cotton wadding (commercial) rolled round the legs from below hock or knee to top of fetlock, and covered outside with a wool bandage rolled tightly and secured with a tape (sewn at its middle to the end of the bandage), the knot being on the outside of the leg. Bandages are better not on at night.

Windgalls and often puffed legs are the result of bad horsemanship, in stopping a horse's exercise too suddenly. The former is caused by the continued flow of synovial fluid rupturing the synovial sheath. If exercise is stopped gradually, the synovia does not flow to excess.

Any puffiness of the limbs can be removed by massage; it takes, however, an energetic man with a Will to do massage properly. The art of massaging, with a certain knowledge of anatomy, can be quickly learnt by a good groom for ordinary stable purposes.

ROLLING

This exercise is a most beneficial thing for any

horse. It acts as a general massage and stimulates all the internal organs. Sand is the best thing to roll on. Horses love it. Every encouragement should be given them. A little sand rubbed on the back will often make a horse roll.

SEA BATHING

This is also very good for horses, who soon get to like it.

BEDDING

The best bedding, of course, is wheat straw. Oat straw is not so good ; it is liable to be eaten, and founs much quicker. Barley straw absorbs most moisture, but is liable to cause skin irritation, and therefore is not good. Peat-moss is an excellent bedding, but wet portions must be removed as soon as possible, as when it is soaked in urine it will dissolve the horn of the hoof and cause diseased frogs.

Tan bark must not be used ; it destroys the feet. Sawdust must be used very thinly, and removed by day, otherwise it overheats the feet.

Other beddings are mustard straw, bean and pea straw, rushes, shavings, wood chips, heather, bracken, wheat and oat hulls, old hay, sweepings from forage sheds, etc., leaves (except those of beech, yew, and box trees), ferns, etc. Leaves and ferns rot very quickly. Whatever be the bedding, it must be removed into the open, under

a roof in wet weather, during the day, to allow the ammonia to evaporate and the bedding to dry and become sweet. It must never be swept under the manger, where it will ruin lungs and eyes.

A horse must be given plenty of good bedding if he is to get proper rest and do his work properly on his daily allowance of food. He works for you ; it is your duty to see that his bed is as comfortable as yours. Do not forget that. 8 lbs. of wheat straw per horse per diem is sufficient if it is well cared for. Be careful in using the fork when laying down or tossing the bedding ; do not prick the horse's legs.

SANITATION

This is discussed more fully in the next chapter.

Too much care cannot be exercised in this matter.

Fresh air, clean floors and walls, spotless mangers and drinking vessels, pure and odourless drains, are essentials for healthy horses and healthy grooms.

Where there is light there cannot be filth.

The floors must be scrubbed with a hard broom and water, with a little creolin added, every day, the drains thoroughly flushed out and creolin, Jeyes', lysol, or other disinfectant solution poured down.

The walls should be whitewashed or painted with sanitary distemper once a month, unless they are made of glazed tiles.

THE FEET

If they become hard, scrub the outside of the hoof well and rub some fish oil well in three times a week, or more often, until the feet soften. During hot weather in camp this should be done three times a week, at night.

Over-washing is not good for the feet. Feet must be picked out every morning first thing, after every return from work, etc., and preferably again at night. If feet become very brittle, fill them overnight with a linseed mash. Two nights in succession should be sufficient. Remove thoroughly each morning. To prevent balling in the snow, rub oil or grease over the ground surface of the foot.

If fish oil cannot be procured, use a mixture of : turpentine, 1; oil of tar, 1; oil of linseed, 4; parts by weight. Mix thoroughly and apply with hand.

LEADING INTO THE STABLE

This is often done very carelessly by inexperienced hands. Turn about and step backwards, holding the bridoon reins with both hands, and lead the horse carefully in. Rushing through doors and gates often knocks off hip-bones.

CLIPPING

The length of the coat, the amount the horse perspires, the work required of the horse, and the conditions under which the horse is living are

factors which decide whether a horse should be clipped or not.

The point to bear in mind is that a horse is better clipped in the winter if he is doing any but slow work, and if he lives in a good stable with good clothing. If the stable is not good, and he is left standing about during his work, then do not clip his legs, and take out a good rug or blanket to cover him up with when left standing. If a horse is clipped, it is better to clip him all over early in October, and to clip him again in the middle of November, less the legs. In the milder parts of England hard-worked horses are often clipped three times during the winter. If a horse is well looked after he is better clipped.

Unclipped horses that have fast work to do perspire too much, are very liable to get a chill and pneumonia, and take a long while to dry at night, and therefore are deprived of a lot of comfort and rest. Except in the case of most thoroughbreds, who have fine coats, it is impossible to keep a horse fit in hard work with a long coat.

On service, when a horse may have to go suddenly in the open, clip the lower half of the body (*i.e.* trace high) and leave the legs. Thin-skinned horses are better left with a saddle patch for saddle or harness.

While clipping a horse, keep his body covered up when doing his legs. Let him have a run around afterwards to warm himself up. A good

sweat the following day will do him a lot of good. Give him extra heating food (beans and peas) for a few days and rug him up according to the thickness of coat removed.

Singeing after clipping does a lot of good.

Hunters are often better left with their legs unclipped, to protect them in thorny country and from clayey mud. It is not necessary to clip a horse to rid it of lice or ringworm. But with mange it is desirable.

FETLOCKS AND HEELS

The hair at the back of the fetlocks, which is permanent hair, is better trimmed short with the scissors all the year round, except in cases where horses are always out in the wet and there is little chance of getting the heels dry; then do not touch the heels. Do not dry the heels on return from work, merely rub the dirt off with a handful of straw, and brush thoroughly when dry.

EARS

Never clip the long hairs inside the ears; these are there for a purpose, to keep foreign matter and draughts out of the inner ear. Any hair that protrudes outside the ears can be trimmed off with scissors.

Do not cut the tactile hairs on muzzle or around eyes. Examine inside the ears every day in the summer for little flies that get in there and cause

considerable irritation and often shaking of the head.

MULES

These should not be clipped except for veterinary reasons. Nor should their tails be clipped.

THE FORELOCK

This should be left unclipped, but trimmed with the comb, as a protection to the eyes against flies. A good forelock greatly improves the look of a horse.

THE MANE

Most horses are greatly improved in beauty with a well-kept mane. For various reasons most of the Army horses are hogged. No doubt on service it is better; it allows the horse to be groomed slightly quicker, and decreases risk of mange about the neck, and allows for uniformity. I think the forelock ought not to be touched, as explained above.

When manes are hogged, they must be done at least once a week, if possible twice. Hand clippers, or a machine clipper with an old head, should be used.

It is fairly easy to get a mane that has been hogged to grow again, if trouble is taken. It should be plaited, wetted, and weighted, and later a hood can be worn.

It is a great pity to hog many horses, and I fear

that lazy grooms urge it upon their masters, who often have more money than horse-knowledge.

A mane should be kept of a uniform length, and kept thin by using a fine mane comb and pulling out a few of the straggly pieces each day.

As regards the beauty of the mane, I refer the readers to some of the photographs in *Modern Horse Management*.

THE TAIL

Should the reader be the possessor of a horse with a docked tail, my advice to him or her is to let the wretched animal have as much hair to grow on the end as possible. But do not let the hair grow into a thick bushy mass like some of the French cart-horses (see Chapter VII).

Banging the tail consists of cutting the hairs across at varying lengths from below the dock to the hock, or even lower. I must again refer the reader to *Modern Horse Management* if he wishes to see the natural length of the dock of various types and breeds of horses.

Banging the tail keeps it clean in muddy weather. It can be banged short in winter, but left to grow to the hocks in summer when the flies are out. Remember that the Fly Muscle under the skin (the Panniculus Carnosus) does not extend over the hind-quarters nor between the thighs—hence the tail.

The Army horse should be banged so that the end of the tail is one hand's breadth above point

of hock while the horse is in motion—which means, probably, to the hocks when horse is standing.

Thinning the tail improves the look of a horse, and allows the horse to keep much cooler under the dock. When a horse's tail is once got neat he is much better off, as a heavy tail, besides making him sweat more freely around those regions in hot weather, is not so easy to wield after the offending fly or mosquito. It is length of tail the horse wants in the fly season. This length should be well below the hocks in India, the tropics, Canada, and other hot summer countries, and at least to the hocks in other places.

Some tails are thinned too much, to a state of hideousness, which only shows what inartistic brutes the horse has to look after him.

A good groom will get a tail thinned in a few weeks by combing out a few hairs each day. The practice of pulling out large bunches is brutal, and must not be allowed. Such practices irritate the horse and may make him "touchy" about the hindquarters. A horse that has not been so abused, or had his tail otherwise interfered with, is practically always quiet to touch, to walk against in the dark stable, and to play about with. And if such a horse should swish his tail over the reins, it is easy to pull them out if he knows he is not going to be hurt. I always get a horse used to going along with his tail over the reins from the first. He will never "grip" the reins afterwards.

Plaiting the tail is very common in the U.S.A. and Canada, and I strongly recommend it for muddy weather or in the case of heavy horses, whenever there are no flies about, if one desires.

It is quite common to see jumpers and chasers have their tails plaited. And I have seen scores of hunters and fashionably turned out carriage horses likewise. I refer the reader to several dozen photographs of plaited tails in *Modern Horse Management*. One can very quickly learn to plait his own horse's tail.

❧ Tails must never be left plaited up overnight. Plaiting must not be done too tightly or pain, or perhaps serious damage, will be caused.

DISEASES OF THE HAIR

To prevent mange, the safest way with horses on active service under bad conditions is to clip the neck on both sides and a circular patch of 3 ins. in width around the root of the dock, the two places where mange is most likely to start. Under very extreme circumstances tails have been clipped to cure an epidemic, but this is not necessary if the veterinarian knows his work.

Neglected manes and tails sometimes get eczema. Irritant soaps, dirt, rubbing caused by horse's blood being overheated, etc., are the causes. A weak solution of lysol is the best preparation I know. A little glycerine can be added. Act immediately, and in the case of the tail put on a bandage at

once to prevent the horse rubbing the hairs off. In cases of bad rubbing, apply a 5 per cent. solution (1 to 20) of silver nitrate with a brush. If the trouble is not caused through over-washing, or over-exposure to wet, commence by washing with castile soap and warm water.

A good application for itching manes and tails is: linseed oil, 20 parts; sulphur (powdered), 4; oil of tar, 1, by weight. Put the bottle in hot water until thoroughly warmed, shake well, and rub well in. Repeat for two or three days, morning and night.

MUD FEVER

For any form of grease, or mud fever, on the legs, belly, etc., apply twice a day, after brushing the part well, lead acetate and zinc sulphate, of each 1 oz.; bichloride of mercury, 1 tablet ($\frac{1}{4}$ drachm); water, 1 quart. Shake well before use.

Never apply any liquid with a sponge; use a piece of clean calico or linen.

RUBBED TAILS

To prevent rubbed tails, a leather tail guard should be worn on the train or ship, or a flannel or cotton bandage put on fairly loosely. A few of the hairs must be rolled into the folds to keep the bandage on. Any sign of rubbing must be carefully watched for. Rubbed tails show careless horsemastership.

CHAPTER VI

STABLE CONSTRUCTION AND SANITATION

THE USE OF OXYGEN

THIS gas, which forms more than one-fifth of the air, is responsible for all combustion, and therefore for all animal life. Insufficient supply of it (*i.e.* of fresh air) is responsible for countless diseases.

The food of the tissues of the body is blood. Blood contains two forms of food: protein, salts, etc. (derived from what the animal eats and drinks), and oxygen (derived from the air).

Every time the horse inhales, he takes in a certain supply of fresh air containing oxygen. This oxygen is absorbed by the red blood corpuscles, and carried by them in the blood stream all through the body. The "used-up" blood (blue) then goes back to the lungs to be "re-charged." At each expiration the oxygen-less air is driven out, and with this a certain amount of carbon dioxide, which is a waste product of the body, given up by the blood upon reaching the lungs.

It is therefore essential to allow this impure air to escape as rapidly as possible, and for fresh air

to enter the stable. Hot air rises rapidly, therefore the exhaled air will rise rapidly to the roof. The exit must be there then. Fresh air from outside will come in somewhere, and if there are no proper inlets it will come in under the doors, around the windows, and cause draughts, which are injurious. Therefore there must be an inlet. This should be at least 5 ft. above the floor, to avoid draughts.

VENTILATION AND LIGHT

The exit for the impure air must therefore be in the roof. If there is a loft, then it must pass right up through the loft inside a large pipe. There must be a large hood over the top of the ventilator to prevent down-currents or rain gaining entrance.

The inlets, if not proper inlet pipes about 5 ft. up the wall, must be the windows.

Windows should be fitted 6 ft. from the floor over every manger, at least 1 ft. square in size, hinged at the bottom and open inwards to an angle of 30° with the wall. Rows of windows must be on both sides of the stable, even if there is only a single row of stalls. In windy weather those on the leeward side need only be opened. Never close more than half the windows. At night this is most important.

Stables must be as light as a drawing-office. Thousands of lungs and eyes are ruined by lack of fresh air and light. Never leave the bedding or

dung basket in the stable by day. Never brush the bedding up under the manger. Remove the bedding at early stables to a shelter outside, or in fine weather spread it out in the sun.

It is most regrettable that practically all French stables are very badly lit and unventilated.

FLY SCREENS

✪ In summer the windows should be covered outside with fly netting, and a fly-screen door should be put on inside the door frame. Fly papers should be hung up to catch any stray flies.

DOORS

Doors must open outwards and be cut in half, so that in fine weather they can be opened at the top. Latches that cannot be opened by mischievous horses should be used.

TEMPERATURE

The temperature of the stable should not exceed 60° F., except when the weather is very hot, when it will be impossible to keep it down. A thermometer should be hung in every stable.

In very cold countries artificial heating is sometimes resorted to ; it allows of more open windows and doors. But great care must be taken in watching the thermometer. As a rule it is unnecessary,

WALLS

Should be of good brick, with an air-space inside, and at least two layers of damp-proof pitch, etc., over the foundations.

The inside should be of glazed bricks or tiles, but if of ordinary brick or cement, etc., they should be thoroughly whitewashed with lime or sanitary distemper once every two or three months. Wooden walls should be treated once a month.

CEILINGS

These must, if possible, be of fireproof material. Ferro-concrete or brick-arches are best. Hard wood is almost fireproof. For temporary stables sheet or corrugated iron will do.

FLOORS

Be sure the horse has a good floor to lie on. We must consider the surface of the floor from a sanitary point of view, the slope of the stalls and the wearing property of the material used.

The ideal floor is made of small rectangular bricks, with a groove running across centre in one direction—the direction of the drainage. The edges must be bevelled.

The slope of the stall from side to centre must not exceed 1 in 36 (*i.e.* 1 in. drop in a 6 ft. stall). That from front to rear not to exceed 1 in 80 (*i.e.* a drop of $1\frac{5}{8}$ ins. in a 10 ft. 6 in. stall).

Concrete must be grooved. The gangways or

passages behind the stalls or between two rows should be level, unless there is surface drainage, when a slope from one end will be necessary.

The level of the floor should be at least one foot above the ground level. There must be a good thick concrete foundation.

In countries that have very cold winters, wooden floors are often used. These are unhealthy and hard to keep clean. It is better to put a loose floor into each stall during the cold weather, especially for horses that are clipped.

If the floor is wooden, there should be two layers of boards; the upper one need only be 1 in. thick. This latter, on wearing through, can then be replaced. I have known of a horse falling through a 2 in. floor, the amount of wear, being gradual, not having been noticed.

The approaches to the stable door should be gradual, grooved, and wider than the door.

DRAINAGE

As stated before, a horse cannot be healthy with bad drains. Surface drains are the surest, and if washed down with a little antiseptic and a hard broom twice a day, will keep quite sweet. They should be shallow and not covered. The slope of the stalls to the rear and the passage ways to one end of the stable will provide for the necessary flow. A slope of 1 in 80 is sufficient.

If closed drains are used, great care must be

exercised in flushing them out twice a day and noting if there is any smell coming up the grating in each stall. I do not like centre drains; they are too near the horse's head. One at the back of the stall is best. In the case of a mare, such drainage will be ideal, and in the case of a horse, the slope of the stall will allow for drainage.

There must be a man-hole trap outside the stable. This and, in the case of open drains, the gully-trap should be inspected and flushed daily.

The whole stall should be washed down with a two per cent. solution of creolin, etc., when the horse is out at exercise or work.

Loose-boxes should have a drain in the centre, or, with open drains, should slant slightly towards the centre line, which will lead into the passage drain in the stable.

STABLE SITE

This is important. It should be on dry soil, and, if possible, not surrounded with thick trees or near ponds, or surrounded by other buildings.

STALLS

The partition should be solid, made of hard wood or metal, and be high enough to prevent horses fighting over the top. Open-work upper portions are best, as they allow the gregarious horse to talk to his companion. Five feet at the head end is quite high enough for the top rail.

The stall should never be less than 5 ft. in width for a light horse, or 5 ft. 6 in. to 6 ft. for a heavy horse, so that he can lie down properly. Ten feet to 11 ft. in length is recommended.

At night a rope should be hung from post to post behind the horse, or a rod can be used to temporarily convert the stall into a loose box. This prevents the horse getting loose.

If bails are used as partitions, they are better if made of iron, and should be heavy. With these it is important to mate horses properly to prevent a possibility of one horse stealing another's oats or hay (see Chapter III).

A loose-box should be at least 10 ft. square. The upper portion of the partitions should be open-work. The door catch must be outside only.

MANGERS AND HAY-RACKS

These should be all metal. Overhead hay-racks are not good. They cause dust and hay-seed to get into the horse's eyes, nostrils, and mane.

The oat manger should be movable, as it must be washed out every day. Wooden mangers require particular attention. Never use creolin in a manger. Bichloride of mercury is odourless ; after its use, rinse the manger well. The oat manger should be wide and fairly deep.

Never take a horse out to exercise or work without first ascertaining that he has finished up his previous meal.

TROUGHS AND UTENSILS

Horse troughs must be kept very clean; scrubbed out at least once a week. Canvas ones should be emptied, scrubbed inside and out, and hung up for an hour or so, once a week. They should be kept off the mud, on wooden stands.

All stable buckets, etc., should be sterilised once a week with boiling water. Never put creolin, carbolic, or any coal tar, or other smelling drug in a drinking-bucket. Keep an old bucket, marked, for the purpose.

TYING UP HORSES

As well as using a rope behind the horse at night, care should be taken to see that the head collar is properly on. At night the throat lash should be done up several holes shorter to that used by day or with the bridle. A neck strap looped through the upper jowl-ring, in addition, is a safe precaution. If a rope is tied around a horse's neck, be most careful that the knot cannot slip and strangle the horse.

The halter rope must be tied to the front of the manger, which should be 3 ft. 6 in. above the floor, at such a length that when the horse's head is on the ground in any position, the loop formed by the rope will be 1 ft. above the ground. There will then be no danger of the horse getting his foot over and casting himself.

As a precaution, I believe in teaching a horse to get his foot back after putting it over the halter rope. It is easily taught, and most horses seem very pleased with themselves after they have learnt it.

The ideal way, of course, is to use a pliable rope or thick leather strap, that passes through a ring and is attached to a box-wood log. The length should be such that the horse can lay his head comfortably on the ground, and there will never be a loop form over which the horse can get his legs. For horses that chew their rope use a raw hide strap, if necessary well dubbed. Chains are noisy things, and prevent proper rest.

IMPROVEMENTS TO OLD OR BADLY CONSTRUCTED STABLES

Various improvements can be made at small cost. Particularly ventilation and light. Windows, doors, and fly screens. Drains. Floors relaid.

The stalls, mangers, etc., rebuilt. The walls and ceilings lime-washed, etc., or covered with cement or plaster.

PRECAUTIONS AGAINST FIRE

Concrete, brick, or tile floors, walls, and ceilings are fireproof. Fittings should be all metal, or metal and hard wood. A hard wood door is nearly fireproof. It can also be covered with thin sheet iron.

Peat moss is the safest bedding from a fire point

of view. Buckets full of water must always be kept in a stable, marked FIRE. It is better to use them for nothing else. At least one fire extinguisher should be hung in every stable. These must be carefully inspected regularly.

Doors to open outwards. Never lock a stable and leave the key at a house some way away.

Multi-storied stables that use lifts must have an emergency gangway or chute from each floor. The floor of these should be covered with sand, not sawdust. These gangways must be fireproof; never made of wood. A blanket thrown over burning straw is as good as water. Sand is a good fire extinguisher.

Do not open doors or windows and thereby let in more oxygen. If the fire is serious, cover the horses' heads and get them out of the stable. Afterwards cover any burns, as soon as possible, with oil or grease, preferably animal fat or carron oil (equal parts linseed oil and lime-water). Never wash these parts.

Close all doors and windows to stop draughts and supply of oxygen.

Never allow smoking or naked lights in the stable, except the singeing lamp, which must be used with care. Be careful at all times, and never leave a candle burning that may burn down and set fire to something else. At night make a careful inspection.

If a fire does break out, keep your head.

CHAPTER VII

CRUELTY

THE CRIME OF DOCKING HORSES' TAILS

As there are men and women still to be found who approve of this useless and barbarous fashion, who lower themselves thereby to that of many of the Huns that I have seen during the past four years, a few words on this subject will not be out of place.

Briefly, the chief use of the tail is as a weapon against flies and other insects. It is also of great value in steering and assisting the horse to maintain his balance ; also as a protection against chill in the vital parts, particularly of a mare. There is a fly muscle (*Panniculus Carnosus*) that extends all over the body under the skin, except near the crest, where the mane should reach, between the thighs and over the hindquarters, where the undocked tail will reach. This muscle is used to twitch the skin to drive away flies. A docked horse is defenceless over these unprotected parts. If, on the other hand, the hair has only been banged off,

however short, he will be able to reach practically all over these parts; and should he be turned out to pasture, the hair will grow. In the summer the hair soon grows a bit longer, and thereby gives him more comfort. It is barbarous to turn a docked horse out to pasture in the fly season, yet, to prove the thoughtlessness of docking advocates, it is always being done. This is why the veterinary profession (which I was in for several years) have advised owners of brood mares to spare the tails. Many a foal has been kicked by its tailless mother trying to kick off flies.

A stable full of docked horses in the fly season is noisy and irritating. Such horses get little rest, and knock their hind legs all to pieces. It is a pleasing and peaceful sight to see a long tail gracefully swishing off the flies.

Docking is supported by a few untenable excuses that I do not believe really convince those by whom they are advanced. They are used to support the real reason, "smartness," and a curious desire to see the horse's hams shown off. As a matter of fact, plaiting, trimming, or banging do this just as well (see Chapter V).

The excuses believed by the inexperienced are cleanliness, strengthening the hindquarters, danger in driving. The first is ridiculous. No sportsman would use it. A groom who would use such an excuse should be dismissed—a lazy groom is a swindle. The second is an impossibility. A de-

ception of the eye has brought about this curious idea. The third excuse likewise explodes. There are 23,000,000 undocked harness horses in Canada and the U.S.A., and several thousand long-tail fours-in-hand. The trouble lies here: there are a few horses that, through bad driving and a bad pair of hands on the part of the would-be driver, have acquired the habit of trying to grab the reins with their tail to ease their mouth. Such horses can be taught in a few days to allow the rein to be placed under the tail and gently drawn out again without depressing their tail. In fact, a harness horse is not properly trained until he will show no objection to this. I have driven so-called dangerous mares as leaders in tandems with perfect safety after a few hours' tuition.

A man who docks horses or encourages the practice has a great burden of veritable torture resting upon his conscience. I have seen scores of heavy horses taken to be docked in the fly-pestered West because there was going to be a horse-show in a few weeks. This brutal fashion was responsible for several scores of matured Percheron horses being docked in Chicago six years ago. Perhaps the strong Teutonic element had something to do with it. These stud horses are never used in harness, so what about the rein excuse?

Horses are often harnessed too far back in the shafts of two-wheel carts. The law should look

to such things as this. No man who wishes to plough or reap in peace wants docked horses who cannot defend themselves from flies. It is the ignorant and wealthy horse exhibitor that has his horses docked.

The practice reaches nearly to the level of some of the latter-day crimes of Berlin, when we hear of a veterinary surgeon some ten years ago in the States docking and nicking some forty fine trotting horses that were afterwards shown in hackney classes and won over 50% of the prizes.

The horse show is greatly responsible for the modern hunter and polo pony, with their long tails, but it is also responsible for encouraging the docking of Hackneys, Shires, and Clydes.

Docking is absolutely unnecessary, and could be dispensed with for ever. No docked horses (except for breeding purposes) are allowed to enter California. The punishment for docking is two years.

One of the reforms we should make, now that the war is over, is to forbid this barbarous practice by law.

HUMANITY

Kind treatment of animals and the abolition of cruel fashions, whatever they may be, must be part of our new system of education. The human being should put himself in the place of the victimised animal. Cruel men and women are always cowards. This war has proved it,

I consider the French and Belgian peasants very disappointing. They are decades behind us in the care of horses and in the manner in which they handle them. They use sharp bits with single ropes to drive with, and often abuse their horses abominably. These bits and single-reins should be forbidden by law. The drivers and farmers seem to have no sympathy for their horses. Besides the way they drive them, yell at them, put them in unventilated stables, etc., they chop off their docks and let the hair grow in a tangled mass over the hindquarters, which soon gets into a disgusting state. Young boys are left to handle horses, and are never taught in any way to be kind to their charges. Cruelty seems to be ingrained in them when mere children.

BEARING REINS

These are quite unnecessary on a horse driven by a pair of good hands. Tight ones should be illegal; any one who allows them is publicly branding him or herself as a brute. Loose ones are unnecessary, so no good horseman wants them, except for certain purposes, when they can be used very loosely to stop a horse getting his head down when left standing and walking on his reins. This applies to horses in towns, etc.

A horse should be allowed to stretch his neck as he pleases, and when going up hill, especially

when pulling a load, he must be allowed to lower his head. Mechanics tell us this. Otherwise he may strain his back, and at the best horse-power is being lost.

A properly trained horse must be free in action from muzzle to tail. Any mechanical contrivance that hinders freedom of action is contrary to good horsemanship. It is the inferior horseman that finds he requires mechanical aid. A horse driven in such mechanical appendages cannot have a good mouth.

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